

REMARKS

This amendment is responsive to the Office Action dated December 30, 2002. This Amendment is being filed with an RCE, a Petition for an Extension of Time, revised drawing No. 4 and a check to cover all fees.

Please charge any additional fees to our Deposit Account No. 01-1960. One copy of this letter is enclosed for such purpose.

Claims 1, 3-8 and 10-32 are pending in the patent application. All the claims were rejected. New Claims 33-41 are added herewith. New subject matter has not been added. Additional claim fees are enclosed.

Applicant wishes to thank the Examiner for the phone interview of April 9, 2003, in which differences between the claimed invention and the cited references were discussed.

During the interview Applicant discussed that Berson is non-analogous art and not reasonably pertinent to the presently claimed invention because Berson is directed to an identification card and a system for producing and authenticating such an identification card. By contrast, the presently claimed invention provides a system for copy protecting a digital signal

representing audiovisual information.

Further, Applicant discussed that Berson does not teach the limitations of “transmitting the scrambled signal and said data signal to a receiver”, required by Claim 1.

The audiovideo digital signal is first encoded to obtain an encoded signal, and the encoded signal is converted into a copy protected signal using a copy protection function (the copy protection function utilizes a CP data signal representing copy protection data). Then the copy protected signal is scrambled to obtain a scrambled signal; and the scrambled signal and said CP data signal are transmitted to a receiver. However, in Berson an encryption key E_i and an encoded decryption key $X[D_i]$ are transferred from center 40 to encrypter module 20.

In contrast, according to the claimed invention, a scrambled, copy protected, signal and, the CP data signal, are transmitted to the receiver. Applicant further discusses that there is no motivation in Girod of including the frequency spreading signal with the transmitted data, and that at least the above reasons, Claim 1 is patentably distinct from the cited references, alone or in combination.

Applicants further discussed that Muratani does not teach or suggest: “a processor for: (i) removing said data signal from the digital signal, and storing the copy protection data represented by the data signal in a memory device, (ii) extracting said scrambled signal from the

digital signal, and (iii) providing the scrambled signal to the descrambler via the link;” and “a reconverter for converting an incoming copy protected signal from the descrambler back into said audiovisual signal using an inverse copy protection function, wherein the inverse function utilizes said stored copy protection data ...”, as required by Claim 15. It was discussed that Muratani teaches receiving a first scrambled signal (scrambled according to first scrambling system (Sa)), into a receiver (set top unit) 50.

This first scrambled signal is input to demodulator 52, wherein an output of the receiver/demodulator 52 is supplied to the scramble circuit 54, which performs a second scramble process Sb different from the first scramble process Sa, and to the key control circuit 62 which controls a key of the second scramble process. When data is supplied from the receiver/demodulator 52 to the key control circuit 62, the key control circuit 62 generates the scramble key for the second scramble process Sa and corresponding descramble key, and supplies the scramble key and descramble key respectively to the scramble circuit 54 and the descramble circuit 56. The double-scrambled signal is sent to security module 70 (referenced by the Patent Office), where it is once descrambled according to the first scrambling system (Da). Then, the once-descrambled signal is sent back to the receiver 50 where it is descrambled again in the descrambler circuit 56 according to the second scrambling system (Db), to obtain display data. As such, Muratani does not teach any of the above limitations.

Further, the components in set-top unit 50 do not operate as the Patent Office represents. Muratani simply teaches receiving a scrambled signal (Sa) and then scrambling it again (Sb). Therefore, Applicants argued, there is no teaching in Muratani of a system with the specified components, that receives copy protected signal and copy protection data as a single signal, and then (1) recovers copy protection data from the single signal, (2) recovers said copy protected data from the single signal, and (3) uses the recovered copy protection data to reconvert the copy protected data.

Applicants further discussed that the references, alone or in combination, do not teach or suggest a system according to the present invention that receives a single signal (i.e., an initial digital signal that is processed into an encoded, copy protected and scrambled signal (first signal) combined with a copy protection data signal (second signal) into the single signal), and then processes the received signal such that: (1) the copy protection data signal (second signal) is removed, (2) the scrambled signal (first signal) is recovered and descrambled to regain the copy protected signal, (3) the copy protected signal is reconverted to the encoded signal by inverse copy protection using the stored copy protection data, and (4) the encoded signal is decoded to recover said initial digital signal.

Applicant further discussed that Claim 20 covers a method of copy protecting in copy protection system including a receiver interconnected to a descrambler module via a link, where

signals flow from the descrambler to the receiver via the link. The method includes the steps of “(a) receiving a digital signal in the receiver, wherein the digital signal includes a scrambled audio-visual signal”. Then, “(b) generating a copy protection data signal representing copy protection data”.

It was discussed that in Muratani (e.g., FIG. 2), the key control circuit 62 does not satisfy limitations of step (b) of Claim 20, and that Muratani specifically states in Col. 5, line 9 to Col. 6, line 11, that when data is supplied from the receiver/demodulator 52 to the key control circuit 62, the key control circuit 62 generates the scramble key for the second scramble process and corresponding descramble key, and supplies that scramble key and descramble key to the scramble circuit 54 and the descramble circuit 56, respectively. Therefore, key control circuit 62 does not generate copy protection data and as such does not meet limitations of part (b) of Claim 20.

Further, it was discussed that Muratani does not meet limitations of step (c) of Claim 20: “(c) transmitting the digital signal from the receiver to the descrambler module via the link”. That digital signal represents said scrambled audio-visual signal at the receiver, which is then sent to the descrambler module. By contrast, in FIG. 2 of Muratani, the incoming scrambled signal to receiver/demodulator 52, is first scrambled again in scramble circuit 54. Then, the scramble circuit 54 send this twice-scrambled signal is to module 70. And, it was discussed

that Muratani does not meet limitations of part (d) of Claim 20: “(d) descrambling the scrambled audio-visual signal in the descrambler module to obtain said audiovisual signal”. This is because in Muratani, descrambling said twice-scrambled signal in descramble circuit 72 of module 70, only provides a one-scrambled signal, and not the audio-video signal as claimed. Specifically, circuit 72 (Da) removes scrambling Sa, such that signal output of circuit 72 is still scrambled according to scramble circuit 54 (Sb).

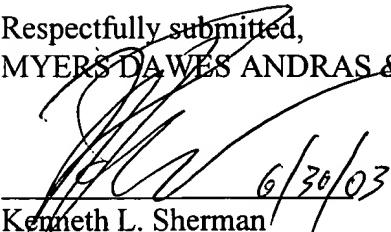
An agreement about patentable distinctness of the claims over the cited references was not reached. However, Applicant maintains that for at least the above reasons, all of the rejected claims are allowable.

In this paper, Claims 20 and 28 have amended herein to further include the limitation of element F from an embodiment of the invention in FIG. 3, as suggested in the advisory action (paper no. 13) by the Patent Office, to further distinguish the claimed invention from the cited references. A marked-up version of the amended claims, showing the changes, is enclosed.

FIG. 4 was objected to as not including “prior art” designation thereon. Enclosed please also find a revised FIG. 4 and a marked-up version, including “prior art” designation thereon. Entry of the revisions to FIG. 4 is respectfully requested.

Re-examination, reconsideration and allowance of all claims are respectfully requested.

Respectfully submitted,
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Signature: Evelyn Menjivar

Marked-up version of the Amended Specification Paragraphs and

Amended Claims

20. (Amended) In a copy protection system including a receiver interconnected to a descrambler module via a link, a method of copy protecting signals flowing from the descrambler to the receiver via the link, comprising the steps of:

- (a) receiving a digital signal in the receiver, the digital signal including a scrambled audio-visual signal;
- (b) generating a copy protection data signal representing copy protection data;
- (c) transmitting the digital signal from the receiver to the descrambler module via the link, and transmitting the data signal from the receiver to the descrambler module;
- (d) descrambling the scrambled audio-visual signal in the descrambler module to obtain said audiovisual signal;
- (e) converting the audio-visual signal in the descrambler module into a copy protected signal using a copy protection function, wherein the function utilizes said data signal;
- (f) transmitting the copy protected signal from the descrambler to the receiver via the link; and
- (g) reconverting the copy protected signal to the audio-visual signal in the receiver using an inverse copy protection function, wherein the inverse copy protection function utilizes said data signal.

28. (Amended) A copy protection system comprising a receiver and a descrambler module interconnected via a link, wherein:

(a) the descrambler module includes: (1) a first communication interface for communicating with the receiver via the link, (2) a descrambler for descrambling an incoming scrambled audiovisual signal from the receiver via the link, and (3) a converter for converting the audiovisual signal into a copy protected signal using a copy protection function, wherein the converter receives a data signal from the receiver representing copy protection data such that the copy protection function [utilizing] utilizes the copy protection data from the receiver to generate the copy protected signal, and for providing the copy protected signal to the receiver via the link;

(b) the receiver includes: (1) a second communication interface for communicating with the descrambler module via the link, (2) a signal generator for generating a copy protection data signal representing copy protection data and providing said data signal to the descrambler via the link, (3) a reconverter for converting an incoming copy protected signal from the descrambler back into said audiovisual signal using an inverse copy protection function, wherein the inverse function utilizes said copy protection data;

wherein in response to receiving a digital signal including a scrambled audio-visual signal, the receiver transmits the digital signal and said data signal representing the copy protection data to the descrambler module via the link, and

wherein in response to receiving the digital signal and the data signal representing

the copy protection data from the receiver, the descrambler module descrambles and converts the audio-visual signal into said copy protected signal, and transmits the copy protected signal to the receiver via said link, whereby the signals flowing from the descrambler module to the receiver via the link are protected against copying.